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## **NATIONAL SCIENCE FOUNDATION**

### **Notice of Virtual Workshop on Software in the Era of Extreme Heterogeneity**

**AGENCY:** Networking and Information Technology Research and Development (NITRD) National Coordination Office, National Science Foundation.

**ACTION:** Notice of virtual workshop.

**SUMMARY:** The workshop on “Software in the Era of Extreme Heterogeneity” will explore challenges and opportunities brought on by extreme heterogeneity of emerging and future computational platforms and how software and community must evolve to respond to the challenges being placed on high-end computing software development and sustainment.

**DATES:** September 22 – 24, 2020.

**ADDRESSES:** The workshop on “Software in the Era of Extreme Heterogeneity” will be held virtually.

**Instructions:** Participation is by invitation only; limited number of virtual seats are available to observers. These virtual seats require registration and are available on a first come, first served basis. The registration link will be published on the workshop website the week before the event. For more information on the agenda, registration, and remote participation, please see the workshop website:

<https://www.nitrd.gov/nitrdgroups/index.php?title=Software-Extreme-Heterogeneity>.

**FOR FURTHER INFORMATION, CONTACT:** Jake Fries at [jake.fries@nitrd.gov](mailto:jake.fries@nitrd.gov) and Ji Lee at [lee@nitrd.gov](mailto:lee@nitrd.gov). Individuals who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 1-800-877-8339 between 8 a.m. and 8 p.m., Eastern time, Monday through Friday.

## **SUPPLEMENTARY INFORMATION:**

**Overview.** This notice is issued on behalf of the NITRD National Coordination Office. The agencies of NITRD High End Computing and Software Productivity, Stainability, and Quality Interagency Working Groups are jointly conducting a workshop focused on the software challenges of extreme heterogeneity. Experts from government, academia, and the private industry will discuss the software development and sustainment challenges and opportunities in extreme heterogeneity, including how productivity can be augmented in the emerging heterogeneous computing environment, workforce requirement needed to support and develop software, reducing human challenges of software development, evolution, and porting. The workshop will be held virtually on September 22 – 24, 2020 from 11 AM (ET) to 4:10 PM (ET).

**Goal.** Experts from government, academia, and the private industry will discuss the software challenges and opportunities brought on by extreme heterogeneity, facilitate information sharing and collaboration, and identify research needs.

**Rationale.** The state of high-end computing technology is rapidly changing due to the need to introduce a variety of unfamiliar hardware solutions to increase performance. This increasing hardware heterogeneity is exacerbated by memory, interconnect, and file I/O performance lagging behind computational capabilities leading to substantial

demands on the programming environment to keep pace. The software challenges for the emerging and future computational platforms are substantial.

**Reference Materials:**

- *Future Computing Community of Interest Meeting of August 5-6, 2019*,  
<https://www.nitrd.gov/pubs/FutureComputing-COI-MeetingReadout-2019.pdf>
- *National Strategic Computing Initiative Update: Pioneering the Future of Computing*, <https://www.nitrd.gov/pubs/National-Strategic-Computing-Initiative-Update-2019.pdf>
- *2018 Report of DOE's workshop on Extreme Heterogeneity*,  
<https://www.osti.gov/servlets/purl/1473756>

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